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analyses should be done on successive days to establish a trend in serum levels of calcium and phosphorus.

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Eperythrozoonosis In Swine

by
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Eperythrozoonosis is an "acute febrile, icteric disease of swine"² caused by the rickettsial organism *Eperythrozoon spp.* There are two species which are commonly associated with swine, *E. suis*, which produces a febrile disease, and *E. parvum*, which is innocuous. Other common names for eperythrozoonosis include epy, swine icteric anemia, yellow belly, and anaplasmosis-like disease.

E. suis organisms are relatively large, coccoid bodies (average size of 0.8u in diameter) found attached to RBC's and also free in the plasma. Transmission of the organism occurs via several methods: 1) bloodsucking ectoparasites especially mange (*Sarcoptes scabiei var suis*) and lice (*Hematopinus suis*), 2) mechanical transmission (needles, ear notching, tail docking, castration, etc.), and 3) in utero transmission.

In utero transmission was shown to exist by an experiment conducted by Dr. A. R. Smith at the University of Illinois. A bred gilt which had been serologically positive (titer 40) for at least 5 months previously was purchased and her pigs were delivered

via cesarian section (germ free). The pigs, therefore, had no contact with the sow or other infected pigs. Out of a litter of 13 pigs, parasites were observed in the blood of all the pigs during the first week. Wright-Giemsa stained blood smears were made to confirm the infection. Three of the 13 died and all dead and moribund pigs had hemoglobins of 1.9-3.0 g/100 ml. and PCV's of 10.5-12.5.⁴

Most parasites in swine don't change the blood picture much, *E. suis* being an exception. The total red count may drop as low as 1-2 million cells/cubic mm. (normal is 7 million cells/cubic mm.), thus creating a severe anemia and icterus: Hemoglobin levels decrease to 2-4 gm. (normal is 13 gm.) and the bone marrow becomes hyperplastic while total white count increases slightly or remains the same.

Incubation time for the disease is approximately 6-10 days. Increased temperature of 104° to 107°, anorexia, depression, and severe and rapid blood destruction with a subsequent decrease in the numbers of parasites are characteristic clinical signs of epy. Later in the course of the disease icterus, polypnea, weakness, and bile stained feces are observed.

On posting a diseased animal, icterus, yellow liver and a soft, enlarged spleen are

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common findings. Thin watery blood, ascites, a pale, flabby heart and hydropericardium are also often noted. Microscopically, hyperplastic bone marrow and hemosiderosis and centrilobular necrosis of the liver can be seen. The severe anemia associated with epy is due to R.E. hemolysis and auto-immune phagocytosis.

There are three main clinical forms of epy: 1) a form in which there are infertility problems such as abortions and/or weak pigs which often bleed from the navel, 2) a form which manifests itself just after the pigs are weaned. In this form the pigs go progressively downhill postweaning and become chronic "poor-doers" which are anemic and often develop a diarrhea terminating in death, and 3) the form most often described is the acute, febrile, icteroanemic disease of shoats. This form is less common than previously due to antibiotic feed additives.⁴

Diagnosis was formerly based on history and demonstration of the parasite in blood smears. The organism is often difficult to find on blood smears due to the fact that the number of parasites is on the decline by the time clinical signs are evident and, even so, many infections are subclinical in nature. For these reasons the indirect hemagglutination (IHA) test was developed. It is an improvement over the complement fixation (CF) test since it detects IgM while the latter detects only

IgG. In the carrier state the IgG antibody may be effectively neutralized yielding negative results with the CF test. The IHA test has been shown to be a reliable test.⁵

The swine host can carry epy organisms for long periods without displaying clinical signs of the disease. The blood is extremely infectious to other swine even though it may be impossible to demonstrate the organism on blood smears.

Two commonly used treatments for epy are oxytetracycline at 3-5 mg./lb. and arsanilic acid at 360 gm./ton for five days (experimentally derived dose). Symptomatic treatment is also important and includes administration of sodium cacodylate, iron, and B-vitamins (indicated for anorexia). Of course, far better than cure is prevention which can be achieved by controlling lice and mange and also prevention of mechanical transmission of the organism.

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Pseudorabies In Cattle

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Pseudorabies (PR), or Aujeszky's Disease is a disease caused by a Herpesvirus causing both apparent and inapparent infections in swine and causing disease in other species. In volume 37, 1975

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no. 1 of the *ISU Veterinarian*, the disease was described as it has been seen in swine of various ages. The clinical cases described in that article were similar in some manifestations and different in others to cases seen in a recent PR outbreak near Hubbard, Iowa from February, 1974 and continuing to date. This epidemic has spread to 23 different farms causing a large economic loss. There have also been